

Introduction

More than 30 trace elements (TE) can be measured to help with clinical investigations. The circumstances in which measurement may be required include:

- Occupational exposure: lead, mercury, arsenic and other toxic elements
- Suspected nutritional deficiency of an essential element: copper, zinc, selenium and manganese
- Differential diagnosis in which a deficiency or excess needs to be eliminated
- Metal-on-metal hip replacements: chromium and titanium.

The laboratory has the facilities for the measurement of a wide range of other trace elements in blood, serum, urine, tissue biopsy, hair and nail samples.

Trace Elements and General Practise

Trace element deficiencies or toxicity can present as a number of clinical signs or symptoms. For full information of each of the 30 elements used clinically please see the SAS Centre website: <http://www.sas-centre.org/assays/trace-elements>. A summary of some of the most commonly encountered queries in general practise are included below. For specific queries, please contact the Trace Element laboratory (*details below*).

Problem	Comments	Investigation
Can dental amalgam cause mercury toxicity?	There is no evidence that the very tiny amounts of mercury released from dental amalgam will have any toxic effect.	If essential for patient reassurance mercury needs to be measured on an early morning urine specimen (<i>acid wash bottle</i>).
Removing old paint at home.	Leaded paint may be present in old houses and if this has been sanded down the dust might represent a hazard to young children.	Whole blood lead measurement.
Hair loss	Hair loss has been associated with zinc deficiency.	Serum zinc measurement.
Loss of appetite, anorexia	Absent or distorted taste sensation is a feature of zinc deficiency.	Serum zinc measurement.
Abdominal Pain	Several elements may cause abdominal pain.	A trace element screen using blood and urine. <i>Discuss first with trace element laboratory (details below).</i>
Vague neurological symptoms	Several elements are associated with neurological disorders.	A trace element screen using blood and urine. <i>Discuss first with trace element laboratory (details below).</i>
Recurrent infections, poor healing.	Possible zinc deficiency.	Serum zinc measurement.
Nutritional Deficiencies	Patients with known conditions or predisposing factors to nutritional deficiencies that present with suggestive symptoms may require measurement.	Serum copper, zinc and selenium measurement.

Sample Requirements

It is important to avoid contamination when samples are collected and therefore specific sample collection containers are required for the different elements. Please see the online test directory for the specific sample type required.

Trace Elements Laboratory Details

The Guildford Trace Elements Laboratory is one of five centres in the country which are part of the UK Supra-regional Assay Service. For further advice or information see <http://www.sas-centre.org/centres/trace-elements/guildford> or contact the laboratory using the details below.

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For specific sample requirements and reference ranges please see the online test directory.